

AMENDMENTS TO THE CLAIMS

Claims 1-14 (Canceled)

Claim 15 (Previously Presented): A piston made of an aluminum cast alloy, wherein the aluminum cast alloy has a hypereutectic structure and comprises:

Mg (Magnesium): 0.2-2 mass %,
Ti (Titanium): 0.15-0.3 mass %,
Si (Silicon): 10-21 mass %,
Cu (Copper): 2-3.5 mass %,
Fe (Iron): 0.1-0.7 mass %,
Ni (Nickel): 1-3 mass %,
P (Phosphorus): 0.001-0.02 mass %,
V (Vanadium): 0.02-0.3 mass%,
Zr (Zirconium): 0.02-0.3 mass%,
Mn (Manganese): 0.2-0.7 mass%,
Ca (Calcium) : 0.0005-0.003 mass %,
Al (Aluminum): the remaining portions, and impurities, and

wherein pre-use Vickers hardness (Vickers hardness prior to the initiation of use) of the piston is in the range from HV 70 to 100.

Claims 16-18 (Canceled)

Claim 19 (Original): The piston made of aluminum cast alloy as claimed in Claim 15, wherein size of non-metal inclusion existing within the piston is less than 100 μm .

Claim 20 (Withdrawn): A method of manufacturing a piston made of aluminum cast alloy, the method comprising:

a casting step of forming a piston by casting aluminum cast alloy which comprises Mg (Magnesium): 0.2-2 mass %, Ti (Titanium): 0.15-0.3 mass %, Si (Silicon): 10-21 mass %, Cu (Copper): 2-3.5 mass %, Fe (Iron): 0.1-0.7 mass %, Ni (Nickel): 1-3 mass %, P (Phosphorus): 0.001-0.02 mass %, V (Vanadium): 0.02-0.3 mass%, Zr (Zirconium): 0.02-0.3 mass%, Mn (Manganese): 0.2-0.7 mass%, Ca (Calcium) : 0.0005-0.003 mass %, Al (Aluminum): the remaining portions and impurities,

an annealing step of retaining the piston at a temperature of 250-400 °C for 0.5-24 hours in order to make that pre-use Vickers hardness of the piston in the range from HV 70 to 100,

a cutting step of providing a cutting operation to the piston prior to or after the annealing step, and

producing the piston made of aluminum cast alloy of Claim 15.

Claims 21-23 (Canceled)

Claim 24 (Withdrawn): The method of manufacturing a piston made of aluminum cast alloy as claimed in Claim 20, wherein after the casting step is carried out, a solution heat treatment step of retaining the piston at a temperature of 450-510°C for 1-12 hours is carried out, then, a quenching step of rapidly cooling the piston is provided, and subsequently, the annealing step is carried out.

Claim 25 (Withdrawn): The method of manufacturing a piston made of aluminum cast alloy as claimed in Claim 24, wherein after the quenching step is carried out, an aging step of retaining the piston at a temperature of 180-280°C for 1-12 hours is provided, and subsequently, the annealing step is carried out.

Claim 26 (Previously Presented): A piston made of an aluminum cast alloy, wherein the aluminum cast alloy has a hypereutectic structure and comprises:

Mg (Magnesium): 0.2-2 mass %,
Ti (Titanium): 0.15-0.3 mass %,
Si (Silicon): 10-21 mass %,
Cu (Copper): 2-3.5 mass %,
Fe (Iron): 0.1-0.7 mass %,
Ni (Nickel): 1-3 mass %,
P (Phosphorus): 0.001-0.02 mass %,
V (Vanadium): 0.02-0.3 mass%,
Zr (Zirconium): 0.02-0.3 mass%,
Mn (Manganese): 0.2-0.7 mass%,
Ca (Calcium) : 0.0005-0.003 mass %,
Al (Aluminum): the remaining portions, and impurities.

Claims 27-29 (Canceled)

Claim 30 (Previously Presented): The piston made of aluminum cast alloy as claimed in Claim 26, wherein size of non-metal inclusion existing within the piston is less than 100 μm .

Claims 31-39 (Canceled)

Claim 40 (Previously Presented): The piston made of an aluminum cast alloy as claimed in Claim 15,

wherein the aluminum cast alloy consists of:

Mg (Magnesium): 0.2-2 mass %,

Ti (Titanium): 0.15-0.3 mass %,

Si (Silicon): 10-21 mass %,

Cu (Copper): 2-3.5 mass %,

Fe (Iron): 0.1-0.7 mass %,

Ni (Nickel): 1-3 mass %,

P (Phosphorus): 0.001-0.02 mass %,

V (Vanadium): 0.02-0.3 mass%,

Zr (Zirconium): 0.02-0.3 mass%,

Mn (Manganese): 0.2-0.7 mass%,

Ca (Calcium) : 0.0005-0.003 mass %,

optionally Cr (Chromium): 0.01-0.5 mass%,

optionally B (Boron): less than 0.01 mass%,

optionally Be (Beryllium): 0.01-0.5 mass%,

Al (Aluminum): the remaining portions, and

impurities.

Claim 41 (Previously Presented): The piston made of an aluminum cast alloy as claimed in Claim 26,

wherein the aluminum cast alloy consists of:

Mg (Magnesium): 0.2-2 mass %,

Ti (Titanium): 0.15-0.3 mass %,

Si (Silicon): 10-21 mass %,

Cu (Copper): 2-3.5 mass %,

Fe (Iron): 0.1-0.7 mass %,

Ni (Nickel): 1-3 mass %,

P (Phosphorus): 0.001-0.02 mass %,

V (Vanadium): 0.02-0.3 mass%,

Zr (Zirconium): 0.02-0.3 mass%,

Mn (Manganese): 0.2-0.7 mass%,

Ca (Calcium) : 0.0005-0.003 mass %,

optionally Cr (Chromium): 0.01-0.5 mass%,

optionally B (Boron): less than 0.01 mass%,

optionally Be (Beryllium): 0.01-0.5 mass%,

Al (Aluminum): the remaining portions, and
impurities.

Claim 42 (Canceled)